07-14-08

Reminders:

- Turn in Problems 9 and 12 Today
- Read Chapter 4 and Section 5.1
- 2nd Webassign Ch 2&3 due Tuesday 11:59PM
- ***Exam 1 Chapters 1-3 Wednesday July 16.***
- ***Print Out Sample Exams From Our Website***
  (focus on problems 1-4 Exam 1 F01; problems 1,3,&4 Exam 2 F01; problem 1-6 Exam 1 S00; problems 1,3, & 4 Exam 2 S00.
- Need Scientific Calculator for Exams
- Answers to Standardized Test p.55
  C,A,B,C,A,A; 0.2m North & 0.7m East

Mrs. Shang and I are available to answer questions after class. Please feel free to use us as a resource!!!

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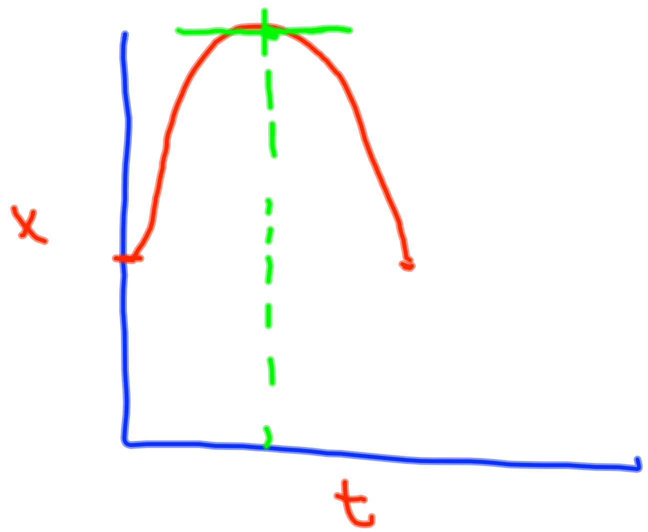
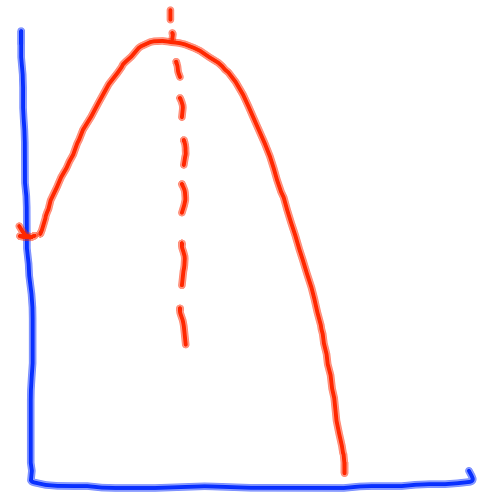




If $v_i = 19.6\,\frac{m}{s}$ and $\Delta y = 0$

$$0 = 19.6t - \frac{1}{2}\left(9.8\frac{m}{s^2}\right)t^2$$

$$0 = (19.6 - 4.9t)t$$

$$0 = 19.6 - 4.9t$$

$$19.6 = 4.9t$$

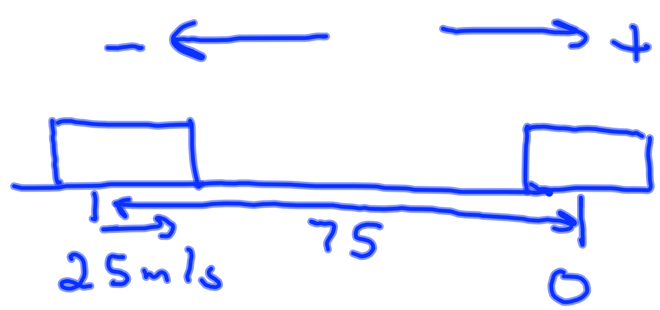
$$\frac{19.6}{4.9} = t = \underline{4.0\,s}$$

$V_i = 19.6\,m/s$ $\quad$ $V_f = -19.6\,m/s$

$$V_f - V_i = at$$

$$t = \frac{V_f - V_i}{a} = \frac{-(19.6 - 19.6)\frac{m}{s}}{-9.80\frac{m}{s^2}} =$$

- An object is traveling at the rate of 25 m/s. It reaches a surface that slows it down. It comes to a complete stop after traveling 75 m.
  - What is the acceleration of the object?
  - How long does it take to come to a complete stop?
- Discuss alternative ways to solve the problem.



$V_i = 25\frac{m}{s}$

$V_f = 0$

$\Delta X = 7$

$$V_f^2 - V_i^2 = 2a\Delta X$$

$$\frac{V_f^2 - V_i^2}{2\Delta x} = a = \frac{0 - 25\frac{m}{s}^2}{2(75m)} = -4.2$$

$$V_f - V_i = at$$

$$t = \frac{V_f - V_i}{a} = \frac{0 - 25\frac{m}{s}}{-4.2\frac{m}{s^2}} = 6.0$$

Challenge question!!!

- A rock is thrown upward from a cliff. The initial velocity of the rock is 22 m/s. The cliff is 32 m above the surface of the ocean.
- What is the *velocity* of the rock when it is 32 m above the ground while it's on the way down? Do you actually need to do a calculation?
- What are the acceleration and velocity of the rock at its highest point?
- What is the *speed* of the rock when it hits the water?
- How long does the rock take to hit the water?
- Discuss alternative methods to solve the latter 2 questions.

$$V_f^2 - V_i^2 = 2a\Delta y$$

$$V_f = \sqrt{V_i^2 + 2a\Delta y}$$

$$= \sqrt{\left(22\tfrac{m}{s}\right)^2 + 2\left(-9.80\tfrac{m}{s^2}\right)\left(-32\right)}$$

Solve for t

$$-32m = 22t - \tfrac{1}{2}(9.80)t^2$$

$$\underset{a}{4.9}t^2 - \underset{b}{22}t - \underset{c}{32} = 0$$

$$t = \frac{+22 \pm \sqrt{(22)^2 - 4(4.9)(-32)}}{2(4.9)}$$

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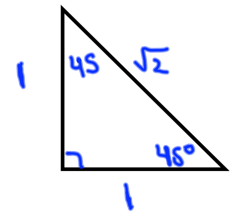
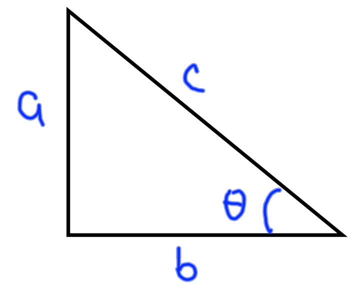
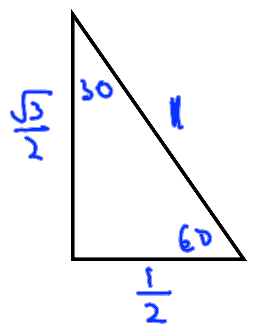
Trigonometry deals with relationships between the sides and the angles of triangles and with the trigonometric functions, which describe those relationships. It is based on the study of right triangles. Trigonometry therefore begins with the study of ratio and proportion.

The relationship between the angles of a right triangle and the ratio of its sides have been tabulated with great precision. Presently we can use a calculator instead of tables to determine the relationship between an angle in a right triangle and the ratios of its sides.



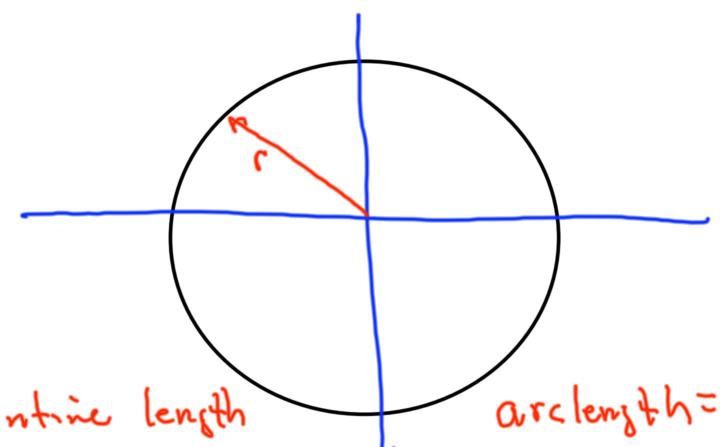




$$\sin\theta = \frac{a}{c}$$

$$\cos\theta = \frac{b}{c}$$

$$\tan\theta = \frac{a}{b} = \frac{\sin\theta}{\cos\theta}$$



Entire length
$2\pi \cdot r$

arclength = s

2π	r	360
π	r	180
$\frac{\pi}{2}$	r	90°

$S = \theta r$

To convert degrees to radians

$\frac{\pi}{180}$

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Webassign #7

TOTAL DISTANCE

$$\Delta x_{reactim} + \Delta x_{de} = 44.0$$

$$v_f^2 - v_i^2 = 2a\Delta x_{de}$$

$$\Delta x_{de} = (44 - 0.75 V_{max})$$

#8 $V_i = 0$ $a = -9.80 \frac{m}{s^2}$

$$\Delta y = -1.1 m$$

$$\Delta y = \cancel{V_i t} + \frac{1}{2} a t^2$$